HRVXXSVU
HRVCCLVU
Heat Recovery Ventilator

Carrier
turn to the experts

Product Data

A11189

HRVXXSVU

A11244

HRVCCLVU

The Heat Recovery Ventilation (HRV) system offered by Carrier is the finest on the market today. These HRV units provide efficient and cost effective heat recovery during the heating season when needed most.

As temperatures drop below 23°F (-5°C), indoor air is recirculated periodically through the heat exchanger core to prevent frost from forming. Competitors' methods of supplementary electric defrost waste energy. Unlike rotary wheel heat exchangers which mix air streams, these cross-flow heat exchangers ensure that there is no mixing of the stale air stream with the fresh outdoor air stream.

A filter installed on the incoming outdoor air stream removes large airborne particles from the intake air stream before they enter the heat exchanger and reduces the maintenance required. The units' acoustically engineered design makes the Carrier HRV the quietest on the market and ensures that comfort is felt, not heard.

Unlatching two (2) suitcase style latches allows easy removal of the filters and core for cleaning on LVU model.

NOTE: The HRV should not be installed in an attic or unconditioned space unless provisions are made for drain line freezing and condensation.

STANDARD FEATURES

- Energy saving defrost cycle
- Cross-flow heat exchangers
- One filter on incoming air; one filter on outgoing air to protect core
- Acoustical design
- No-tools maintenance
- Polypropylene heat exchanger core
- SVU model meets Energy Star Canada requirements

MODEL NUMBER NOMENCLATURE

1	2	3	4	5	6	7	8	9	10	11	12
H	R	V	C	C	L	V	U	1	3	3	0

Product Type
HRV – Heat Recovery Ventilator

Brand
CC – Carrier
XX – Carrier

Description
LVU – Large Vertical Unit
SVU – Small Vertical Unit

Maximum Capacity
157 – 157 CFM
330 – 330 CFM

Electrical Supply
1 – 115 Volts

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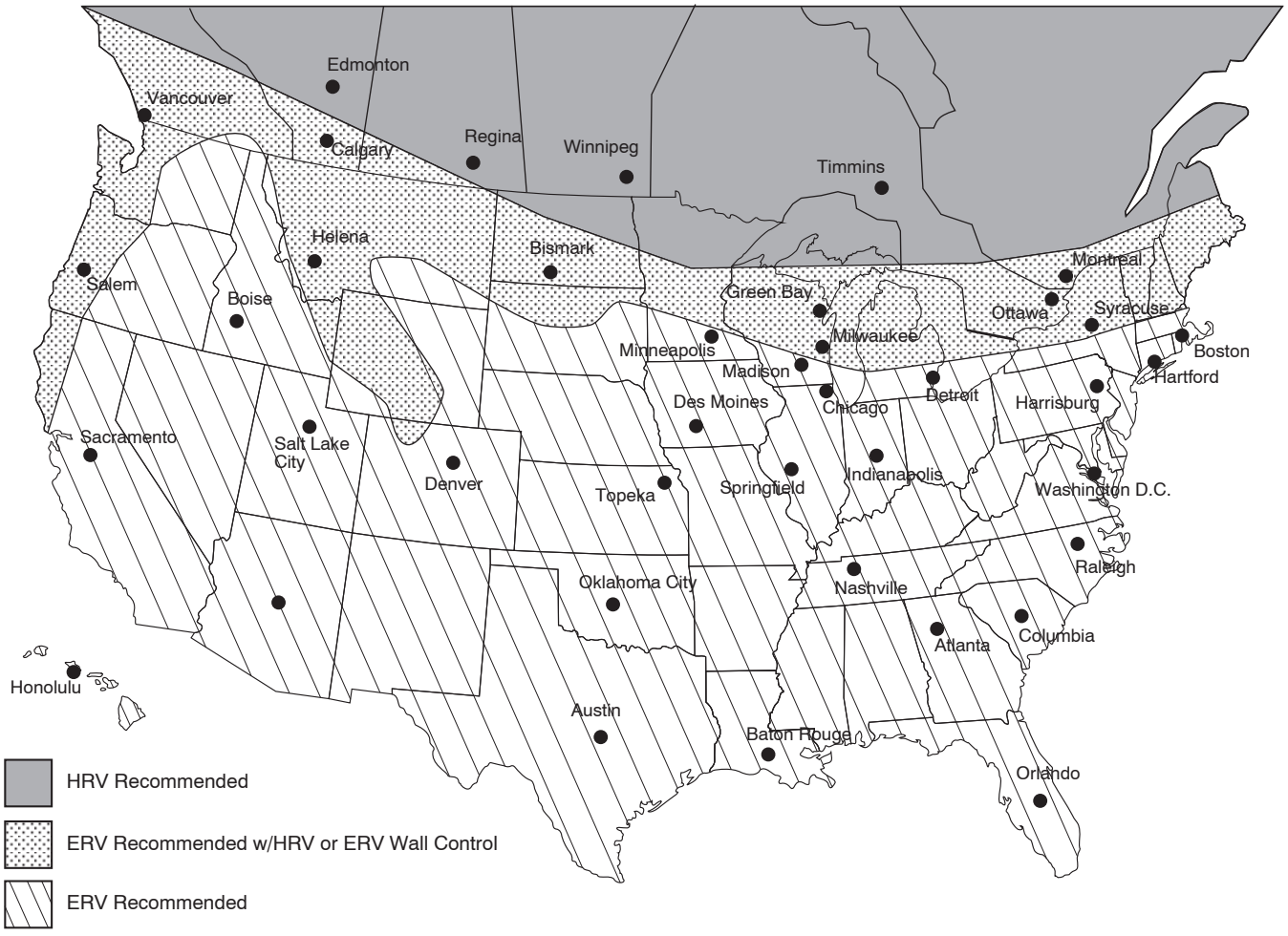
HOME VENTILATING INSTITUTE®
DIVISION OF AMCA

Climate Map for Energy and Heat Recovery Ventilators



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CONTROLS AND ACCESSORIES
PART NUMBER NOMENCLATURE

1	2	3	4	5	6	7	8	9	10	11	12
K	V	B	C	N	0	1	0	1	C	A	U

Product Type
K - Accessory Kit

Description
V - Heat Recovery Ventilator

Series
A - Original Series
B - Second Series

Kit Type
AC - Accessory
CN - Control
FL - Filter Media
TM - Timer

Kit Sequence
01 - Part Number

Quantity
01 - Single Pack

Control Description
CAU - Carrier Automatic Control
CBS - Carrier Basic Control
CST - Carrier Standard Control

Accessory Description
6FM - 6-in Flow meters (2)
7FM - 7-in Flow meters (2)
8FM - 8-in Flow meters (2)
EXH - Exhaust Hood
HOD - Intake Hood
KIT - Balancing Kit
VIR - Interlock Relay

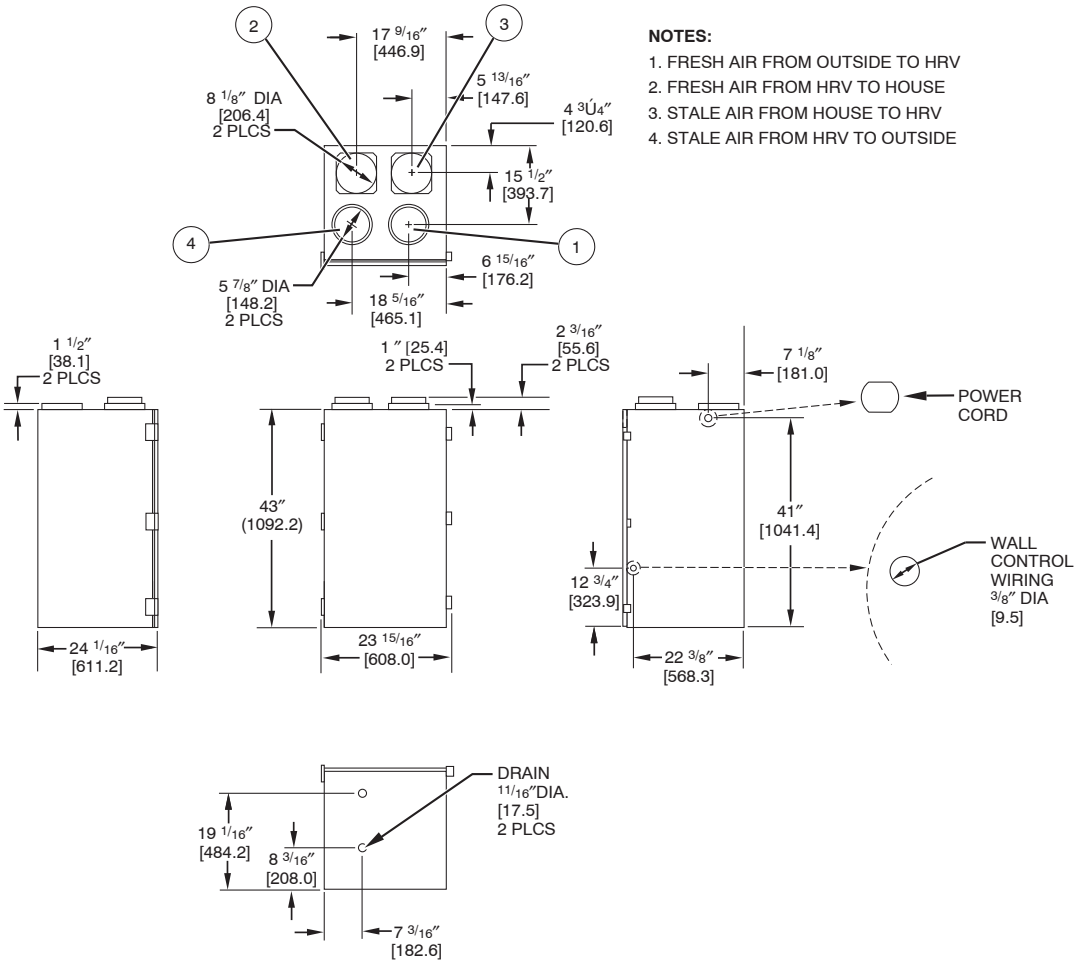
Timer Description
20C - 20-minute Timer Kit
60M - 60-minute Timer Kit

Filter Description
145 - 14-3/8 X 15-1/2
810 - 8-1/8 x 10-3/4
18204 (RCD) - 9-1/4 x 14-1/14 (2)

ACCESSORIES

KIT NUMBER	DESCRIPTION	WHERE USED
KVBCN0101CBS	Basic HRV Control	Used with all HRVs
KVBCN0101CST	Standard HRV Control	Used with all HRVs
KVBCN0101CAU	Automatic HRV Control	HRVXXSVU, HRVCCLVU
KVAAC0101VIR	Interlock Relay	When combining an HRV with a Furnace or Fan Coil
KVATM010120C	20 Minute Push Button Timer	Used with all HRVs when 20 minute manual operation is required
KVATM010160M	60 Minute Timer	Used with all HRVs, time is adjustable between 10 and 60 minutes
KVAAC0101HOD	Exterior Intake and Exhaust Hood	2 Required
KVAAC0101KIT	Start up Balancing Kit	Start up Balancing Kit, includes (2) 6 in. Flow Meter Collars & Magnehelic Gauge
KVAAC01016FM	6 in. Flow Meter Collar	At start up, when 6 in. duct work is connected to HRV
KVAAC01017FM	7 in. Flow Meter Collar	At start up, when 7 in. duct work is connected to HRV
KVAAC01018FM	8 in. Flow Meter Collar	At start up, when 8 in. duct work is connected to HRV
KVAFL0101145	Internal Filter	Used with HRVCCLVU 1330 Unit 14–3/8 x 15–1/2 (1)
KVAFL0101810	Internal Filter	Used with HRVCCLVU 1330 Unit 8–1/8 x 10–3/4 (1)
18204 (RCD)	Internal Filter	Used with HRVXXSVU 1157 Unit 9–1/4 x 14–1/4 (2)

DIMENSIONS



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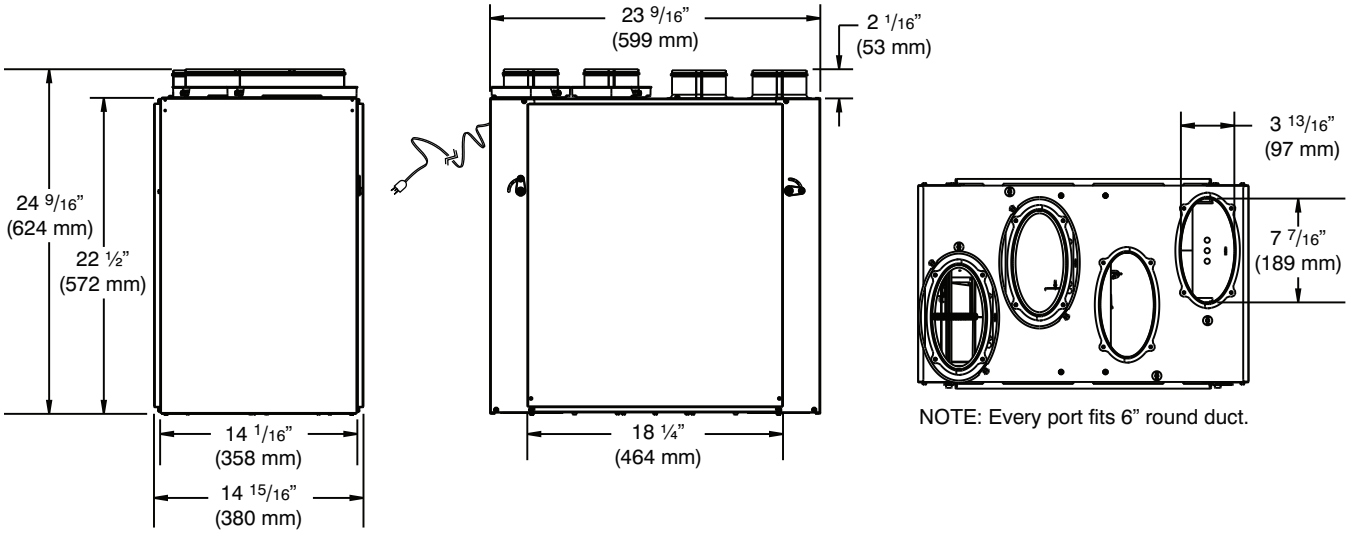
HRVCCLVU1330



NOTE: Every port fits 6" round duct.

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HRVXXSVU1157

PHYSICAL DATA

MODEL	HRVXXSVU1157	HRVCCLVU1330
Port Locations	Top	Top
Core Type	Polypropylene Cross Flow	Polypropylene Cross Flow
Weight — lb (kg)	52 (23.6)	120 (54.5)
Shipping Weight — lb (kg)	56 (25.4)	143 (64.9)
Dimensions in. (mm) Height Width Depth	 24 – 9/16 (624) 23 – 9/16 (599) 15 (380)	 43 (1092) 24 (608) 24 – 1/16 (611)

ELECTRICAL DATA

MODEL	HRVXXSVU1157	HRVCCLVU1330
Voltage	120	120
Max Power — watts	125	500
Max Amps	1.0	5.4

VENTILATION PERFORMANCE

MODEL	EXT. STATIC PRESSURE		NET SUPPLY AIR FLOW		GROSS AIR FLOW			
					SUPPLY		EXHAUST	
	PA	IN W.G.	L/S	CFM	L/S	CFM	L/S	CFM
HRVXXSVU1157	25	0.1	91	193	92	195	91	194
	75	0.3	80	170	81	171	80	169
	100	0.4	74	157	74	158	74	157
	150	0.6	62	132	62	133	63	133
	200	0.8	47	101	48	101	49	104
HRVCCLVU1330	25	0.1	168	357	172	364	148	314
	75	0.3	158	334	160	340	132	279
	100	0.4	151	321	155	328	126	266
	150	0.6	136	288	139	294	109	232
	200	0.8	126	246	118	251	93	198

NOTE: For additional data points, refer to HVI Directory at www.hvi.org

HVI RATED ENERGY PERFORMANCE

MODEL	MODE	SUPPLY TEMP		NET AIR FLOW		POWER CONSUMED (WATTS)	SENSIBLE RECOVERY EFFICIENCY	APPARENT SENSIBLE EFFECTIVENESS	LATENT RECOVERY MOISTURE TRANSFER
		°C	°F	L/S	CFM				
HRVXXSVU1157	Heat	0	32	32	67	56	70	78	0.00
		0	32	40	86	64	68	75	0.01
		0	32	56	120	86	64	70	0.01
		– 25	– 13	30	63	79	61	83	0.01
HRVCCLVU1330	Heat	0	32	55	117	219	80	94	– 0.07
		0	32	86	183	290	74	86	0.02
		0	32	117	249	436	70	83	– 0.01
		– 25	– 13	115	117	264	74	88	0.07

CONTROL FEATURES

Basic Control: Allows the user to manually set fan speed to low or high as required to maximize comfort.

Standard Control: Offers automatic dehumidistat control and the option to select continuous or intermittent fan operation. Setting the wall control to low will activate the continuous mode.

Automatic Control: In addition to the features found with standard control, this package offers a recirculation mode. These controls may only be used to operate stand-alone units with the defrost option which enables the recirculation feature.

CONTROL DESCRIPTION	FAN SPEED CONTROL	DEHUMIDISTAT CONTROL	CONTINUOUS MODE*	INTERMITTENT MODE*	CIRCULATION MODE†
Basic	Yes	No	Yes	No	No
Standard	Yes	Yes	Yes	Yes	No
Automatic‡	Yes	Yes	Yes	Yes	Yes

* Air exchange with outside.
† No air exchange with outside.
‡ Use only on units with defrost.

CONTROL DESCRIPTION AND USAGE

Fan Speed Control — Enables user to modulate fan speed from low to high air exchange with outside.

Dehumidistat Control — Allows the user to select the relative humidity level at which the unit would change fan speed for dehumidification in the winter months.

Continuous Mode — If the relative humidity inside the building is lower than selected, air exchange occurs with the outside at low speed. If the relative humidity inside the house is higher than selected, air exchange occurs with the outside at high speed. Ensures continuous air exchange for constant air quality.

Intermittent Mode — If the relative humidity inside the building is lower than selected, no air exchange occurs and the system turns off. If the relative humidity inside the house is higher than selected, air exchange occurs with the outside at high speed. Ensures minimum air exchange level when the building is unoccupied to minimize operating costs.

Circulation Mode — If the relative humidity inside the building is lower than selected, the ambient air would be circulated and filtered at high speed. If the relative humidity inside the house is higher than selected, air exchange would occur with the outside at high speed. Ensures continuous movement and filtration of air for maximum comfort. Available with automatic control only.

AUTOMATIC DEFROST CYCLE FEATURES

All models offer a non-electric defrost cycle feature which prevents frost and ice buildup within the heat recovery core. When the outside air temperature falls below 23°F (–5°C) it is electronically sensed and the dampers close the outside air ports. This allows warm indoor air to recirculate within the heat recovery core. The frequency of this cycle increases as the outside air temperature decreases.

MODEL	23°F TO 55°F (–5°C TO –15°C)		4°F TO –17°F (–15.6°C TO –27.3°C)		BELOW –18°F (–27.8°C)	
	DEFROST*	EXCHANGE†	DEFROST*	EXCHANGE†	DEFROST*	EXCHANGE†
HRVXXSVU	6 Minutes	60 Minutes	6 Minutes	32 Minutes	6 Minutes	20 Minutes
HRVCCLVU	6 Minutes	60 Minutes	6 Minutes	32 Minutes	6 Minutes	20 Minutes

* All defrost times are in the standard mode (as shipped)
† Time between defrost when within specified temperature range

VENTILATOR SIZING

The tables below should be used to determine the required airflow for a home. These guidelines are taken from ASHRAE 62.2-2007.

Ventilation Air Requirements, cfm

FLOOR AREA (ft^2)	BEDROOMS				
	0–1	2–3	4–5	6–7	>7
<1500	30	45	60	75	90
1501–3000	45	60	75	90	105
3001–4500	60	75	90	105	120
4501–6000	75	90	105	120	135
6001–7500	90	105	120	135	150
>7500	105	120	135	150	165

Ventilation Air Requirements, L/s

FLOOR AREA (m^2)	BEDROOMS				
	0–1	2–3	4–5	6–7	>7
<139	14	21	28	35	42
139.1–279	21	28	35	42	50
279.1–418	28	35	42	50	57
418.1–557	35	42	50	57	64
557.1–697	42	50	57	64	71
>697	50	57	64	71	78

ADDITIONAL HEATING AND COOLING LOAD CHARTS

Although the ventilators process the outside air before it enters the home, additional heating and cooling loads need to be considered.

HEATING LOAD BTU

OUTSIDE TEMP °F	HEAT LOAD (BTUH) @ INSIDE DESIGN TEMP 72°F	
	SVU1157	LVU1330
–25	7,690	9,990
–20	7,090	9,310
–15	6,520	8,650
–10	5,970	8,000
–5	5,440	7,380
0	4,840	6,640
5	4,360	6,060
10	3,900	5,500
15	3,400	4,870
20	3,000	4,350
25	2,610	3,850
30	2,250	3,370
35	1,880	2,870
40	1,560	2,430

The heating load chart shows the heating loads in Btuh for a range of winter design temperatures for each model of ventilator.

EXAMPLE:

The heating design temperature for Milwaukee, WI is –4°F.

COOLING LOAD BTU

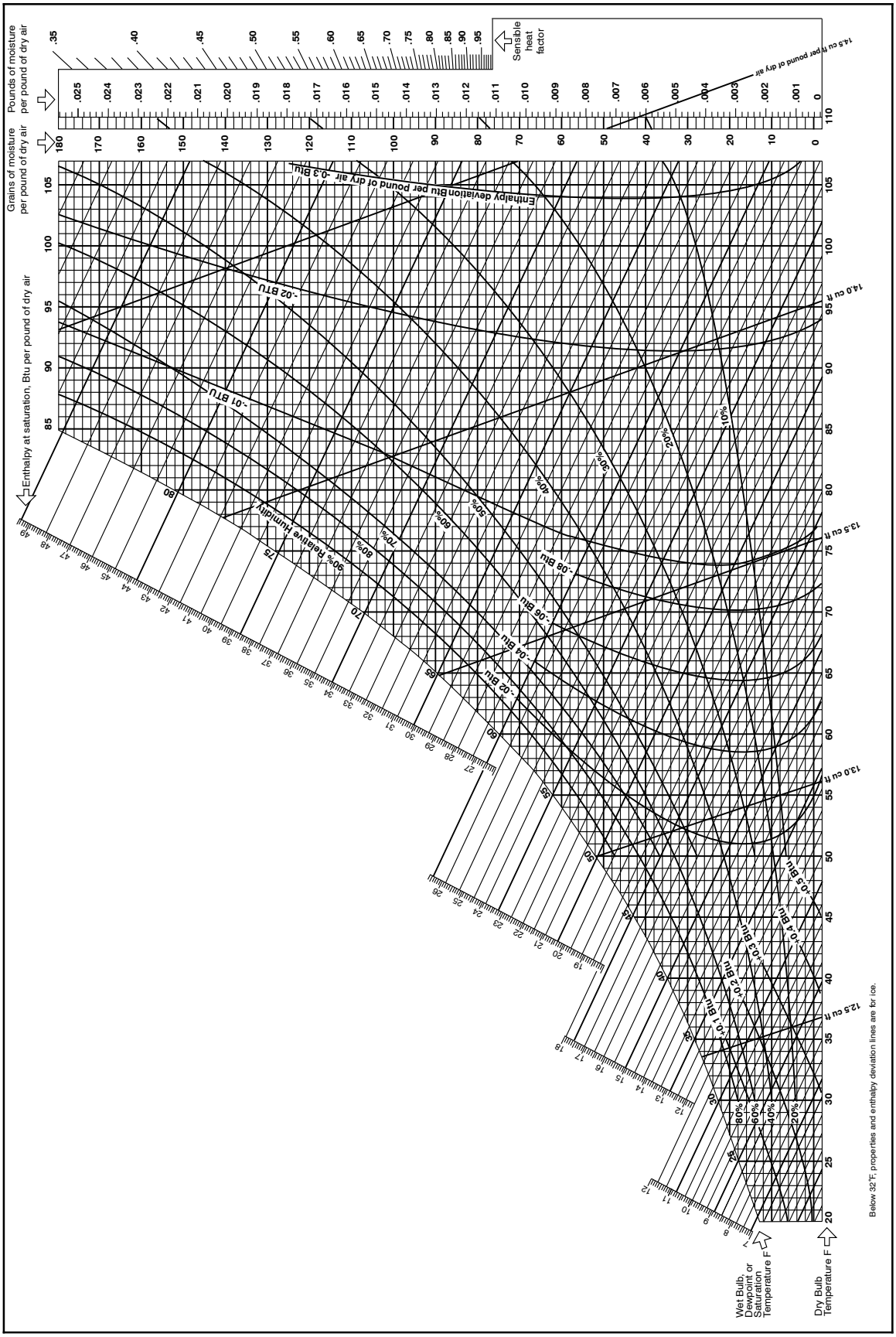
OUTSIDE ENTHALPY BTU/LB	COOLING LOAD (BTUH) @ INSIDE DESIGN TEMP 75°F AND 50% RELATIVE HUMIDITY	
	SVU1157	LVU1330
30	990	1,390
31	1,650	2,310
32	2,310	3,240
33	2,970	4,170
34	3,630	5,090
35	4,290	6,020
36	4,950	6,940
37	5,610	7,870
38	6,270	8,790
39	6,930	9,720
40	7,590	10,650
41	8,250	11,570
42	8,910	12,500

The cooling load chart shows loads in Btuh. To use the cooling load chart, first find the design enthalpy from a psychrometric chart using the design dry bulb and wet bulb temperatures. (See psychrometric chart.) The cooling load can then be found for a range of enthalpies for each ventilator.

EXAMPLE:

The cooling design dry bulb temperature for Milwaukee, WI is 87°F and the average wet bulb at that temperature is 73°F. On the psychrometric chart the enthalpy is about 37.7 Btu/lb of dry air which will round up to 38 Btu/lb of dry air.

PSYCHROMETRIC CHART


Enthalpy at saturation, Btu per pound of dry air
Grains of moisture per pound of dry air
Pounds of moisture per pound of dry air
Sensible heat factor
Enthalpy deviation Btu per pound of dry air
Relative Humidity
Wet Bulb, Dewpoint or Saturation Temperature F
Dry Bulb Temperature F
Below 32°F, properties and enthalpy deviation lines are for ice.

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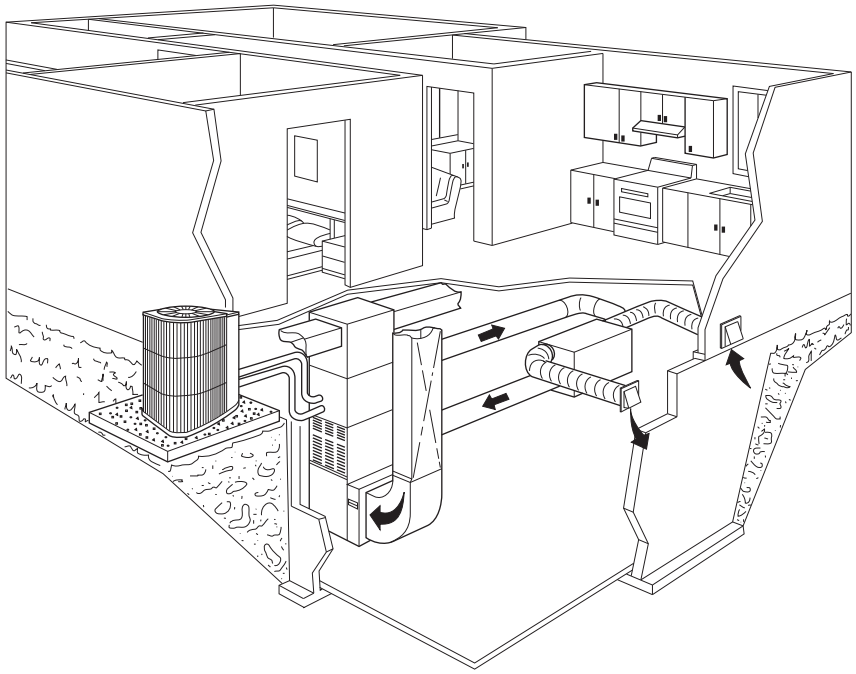
HRV INSTALLED WITH FORCED AIR SYSTEM



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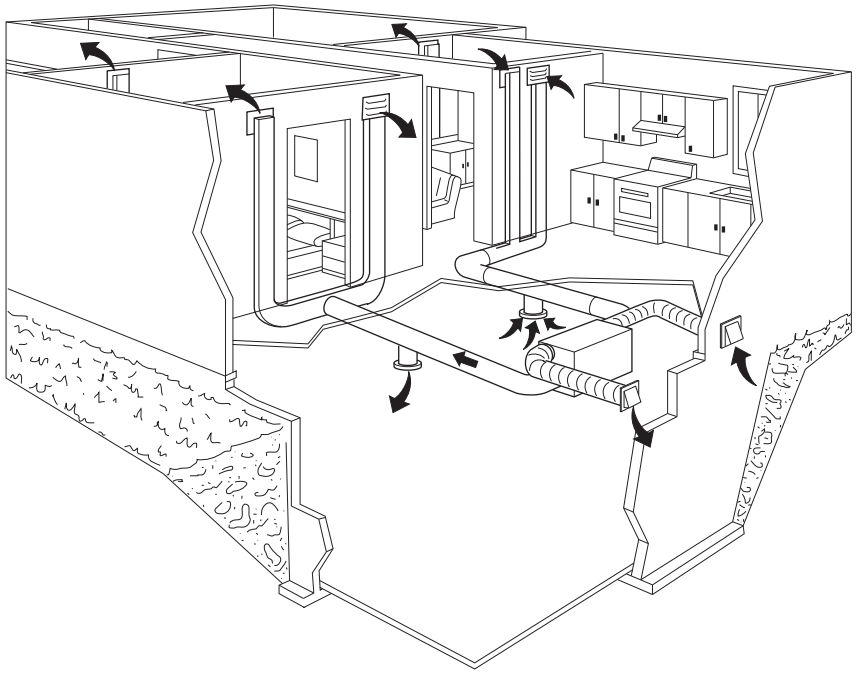
HRV INSTALLED WITH INDEPENDENT AIR DISTRIBUTION



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Replaces: HRV–3PD